



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,847	01/29/2004	Giovanna Malagnino	000500-370	2360

21839 7590 05/17/2005

BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

ABDELWAHED, ALI F

ART UNIT	PAPER NUMBER
----------	--------------

3722

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/765,847

Applicant(s)

MALAGNINO ET AL.

Examiner

Ali Abdelwahed

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7-20,22 and 24-27 is/are rejected.
- 7) ☒ Claim(s) 4,6,21,23 and 28-30 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/29/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

It is suggested that in:

Pages 3, 5, and 6, every recitation of "A1" should be replaced with –A1--.

Appropriate correction is required.

Claim Objections

Claims 12, 17, 20, 21, and 25 are objected to because of the following informalities:

It is suggested that in:

Claims 12 and 17, lines 2 and 3, delete "A1" and insert –A1--.

Claim 20, line 1, delete "15" and insert –19--.

Claim 20, line 2, before "...angle..." insert –the helix--.

Claim 21, line 1, delete "15" and insert –20--.

Claim 25, line 2, delete "front" and insert –rear--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 3722

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 11-13, 15-18, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,222,847 to Hiyama et al. in view of U.S. Patent No. 5,487,626 to Von Holst et al.

Hiyama et al. discloses a tap (10) comprising an elongated body (11) defining an axis of rotation (X) and including axial front and rear end regions (see fig.1). The front end region including a threading portion (12) having teeth defining a helical thread-cutting structure that is chamfered at a rear portion thereof (see fig.1), and at least one helical flute (13a-c) formed in an outer periphery of the body and interrupting the thread-cutting structure (see figs.1, 2). The at least one flute comprising interconnected flanks (see figs.1, 2). The at least one flute consists of three flutes distributed substantially evenly about a circumference of the body (see fig. 2). Also including a connector portion at the rear region of the body (see fig.1).

However, Hiyama et al. fails to teach steam tempering the exposed surfaces of the flanks, and coating the teeth of the thread-cutting structure by physical vapor deposition using one of TiCN, TiN, TiAlN, TiAlCN, CrN, or TiAlN/WC/C. Nevertheless, Von Holst et al. teaches the aforementioned limitations (see columns 1 and 2, lines 20-27 and 52-67, respectively). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the tap of Hiyama et al., in view of Von Holst et al., such that it would provide the tap of Hiyama et al. with the aforementioned limitations for the purpose of increasing the hardness and wear strength of the tap, thereby prolonging the tool life.

Claims 2, 3, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claims 1 and 15 above, and further in view of U.S. Patent No. 4,507,028 to Matsushita.

Hiyama et al., as modified, discloses the claimed invention except for a helix angle of the flute relative to the axis being between 46° and 55° , and preferably between 48° and 50° . However, Matsushita teaches a cutting tool (11) comprising the aforementioned limitations (see column 5, lines 20-28). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Matsushita, such that it would provide the tap of Hiyama et al. with the aforementioned limitations for the purpose of enhancing the cutting efficiency of the tap.

Claims 7 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claims 1 and 15 above, and further in view of U.S. Patent No. 6,158,304 to Packer et al.

Hiyama et al., as modified, discloses the claimed invention except for a rake angle of the thread cutting structure being in the range of 8° - 16° . However, Packer et al. teaches a cutting tool (10) comprising the aforementioned limitation (see column 6, lines 45-47). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Packer et al., such that it would provide the tap of Hiyama et al. with

Art Unit: 3722

the aforementioned limitation for the purpose of enhancing the cutting efficiency of the tap.

Claims 8, 9, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claims 1 and 15 above, and further in view of U.S. Patent No. 6,217,267 B1 to Sugano et al.

Hiyama et al., as modified, discloses the claimed invention except for the body comprising high-speed steel having a hardness of 63.5-66.5 HRC. However, Sugano et al. teaches a tap (10) comprising the aforementioned limitations (see column 13, lines 13-14). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Sugano et al., such that it would provide the tap of Hiyama et al. with the aforementioned limitations for the purpose of increasing the hardness and wear strength of the tap.

Claims 10 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claims 1 and 15 above, and further in view of U.S. Patent No. 6,220,797 B1 to Ishii et al.

Hiyama et al., as modified, discloses the claimed invention except for the body comprising powder steel material having a hardness of 64.5-67.5 HRC. However, Ishii et al. teaches a cutting tool (10) comprising the aforementioned limitation (see column 5, lines 10-15). Therefore, it would have been obvious to one having ordinary skill in the

Art Unit: 3722

art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Ishii et al., such that it would provide the tap of Hiyama et al. with the aforementioned limitation for the purpose of increasing the hardness and wear strength of the tap.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claim 1 above, and further in view of U.S. Patent No. 6,345,941 B1 to Fang et al.

Hiyama et al., as modified, discloses the claimed invention except for the at least one flute consisting of four flutes distributed substantially evenly about a circumference of the body. However, Fang et al. teaches a tap (10) comprising the aforementioned limitations (see figs. 1, 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Fang et al., such that it would provide the tap of Hiyama et al. with the aforementioned limitations for the purpose of enhancing the cutting efficiency of the tap.

Allowable Subject Matter

Claims 4, 6, 21, 23, and 28-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 3722

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ali Abdelwahed whose telephone number is (571) 272-4417. The examiner can normally be reached Monday through Friday from 10:00 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached on (571) 272-4419.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the examiner or the examiner's supervisor.

AA
05/16/2005

A handwritten signature in black ink, appearing to read 'Derris H. Banks', with a long horizontal line extending to the right.

DERRIS H. BANKS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700